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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,494	10/18/2000	James B. Kimble	33588US1	2070

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EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/17/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/691,494

Applicant(s)

KIMBLE ET AL.

Examiner

Walter D. Griffin

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claim 44 is objected to because of the following informalities: The word "catalyst" in line 4 of claim 44 is misspelled. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 44, 49, and 50 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the zinc compounds and boron oxide, does not reasonably provide enablement for zinc. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The specification provides enablement for the zinc compounds listed in claims 44, 49, and 50 but does not provide enablement for zinc. Because catalysts are unpredictable, the entire scope of claims 44, 49, and 50 are not enabled

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 29 is rejected under 35 USC 102(b) as being anticipated by Kaeding (US 4,078,009).

The Kaeding reference discloses a process for converting a hydrocarbon into aromatics and olefins. The process comprises contacting the hydrocarbon with a composition that contains a zeolite such as ZSM-5, a binder (e.g., silica), and a boron promoter. Representative boron compounds include trimethylborate and boron oxide. The amount of boron present can be as high as about 20 weight percent or more depending on the amount and type of binder present. The relative proportion of zeolite and binder may vary widely with the amount of zeolite ranging from about 1 to 99 percent by weight. The catalyst is prepared by combining the zeolite, binder, and boron compound. The catalyst can be activated with steam. See col. 2, line 7 through col. 12, line 3 and the examples.

Claim 44 is rejected under 35 U.S.C. 102(b) as being anticipated by Chu (US 4,720,602).

The Chu reference discloses a composition that comprises a ZSM-5 zeolite, a binder, and a zinc promoter. The composition may be steamed. The Chu reference also discloses a process for converting a hydrocarbon by using this composition. The process comprises contacting a hydrocarbon with the composition at conversion conditions to produce aromatic hydrocarbons. Olefins are also produced in the process. See col. 1, lines 59-68; col. 2, lines 3-13; col. 3, line 49 through col. 4, line 3; col. 6, lines 43-46; col. 8, lines 30-57; and the examples.

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Claims 29-36, 38-41, 43-47, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Drake et al. (US 6,255,243)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Drake reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>8</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a promoter such as zinc titanate, zinc silicate, zinc aluminate, and boron compounds such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. The catalyst can be prepared by combining the catalyst components and then steaming the resulting composition. See col. 1, lines 61-63; col. 2, lines 8-48; col. 3, lines 8-27 and 54-63; col. 5, lines 12-18; col. 6, lines 22-43; and col. 9, line 8 through col. 10, line 18.

Claims 29-36, 38-41, 43-47, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Drake et al. (US 6,083,865)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

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CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Drake reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>8</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a promoter such as zinc titanate, zinc silicate, zinc aluminate, and boron compounds such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. The catalyst can be prepared by combining the catalyst components and then steaming the resulting composition. See col. 1, line 58-67; col. 2, lines 1-15 and 50-67; col. 3, lines 1-24 and 51-60; col. 5, lines 9-15; col. 6, lines 24-44; and col. 9, line 36 through col. 10, line 32.

Claims 29-36, 38-41, 43-47, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Drake et al. (US 6,063,975)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Drake reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>8</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a

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catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a promoter such as zinc titanate, zinc silicate, zinc aluminate, and boron compounds such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. The catalyst can be prepared by combining the catalyst components and then steaming the resulting composition. See col. 1, line 58-67; col. 2, lines 1-15 and 50-67; col. 3, lines 1-24 and 51-60; col. 5, lines 9-15; col. 6, lines 24-44; and col. 9, line 45 through col. 10, line 43.

Claims 29-36, 38-41, 43-47, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Drake et al. (US 5,898,089)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Drake reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>x</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a promoter such as zinc titanate, zinc silicate, zinc aluminate, and boron compounds such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. The catalyst can be prepared by combining the catalyst components and then steaming the resulting composition. See col. 1, line

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54-67; col. 2, lines 1-11 and 44-67; col. 3, lines 1-18 and 45-54; col. 5, lines 3-9; col. 6, lines 19-34; and col. 9, line 39 through col. 10, line 37.

Claims 29-34, 38, 39, and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Yao et al. (US 5,895,828)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Yao reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>8</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a zinc titanate promoter or boron promoters such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. See col. 1, line 47-65; col. 2, lines 20-67; col. 3, lines 1-14; col. 7, lines 14-22 and 55-67; col. 8, lines 1-4 and 54-67; and col. 9, lines 1-39.

Claims 29-36, 38-41, 43-47, and 49-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Drake et al. (US 5,883,034)

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37



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CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The Drake reference discloses a process for converting a hydrocarbon such as a gasoline into C<sub>6</sub>-C<sub>8</sub> aromatics and olefins. The process comprises contacting the hydrocarbon with a catalyst composition at conversion conditions. The catalyst composition comprises a zeolite such as ZSM-5, a binder such as silica, and a promoter such as zinc titanate, zinc silicate, zinc aluminate, and boron compounds such as those claimed in claim 29. The amounts of catalyst components are within the claimed weight ratio ranges. The catalyst can be prepared by combining the catalyst components and then steaming the resulting composition. See col. 1, line 54-67; col. 2, lines 1-11 and 44-67; col. 3, lines 1-18 and 45-54; col. 5, lines 7-13; col. 6, lines 20-35; and col. 9, line 39 through col. 10, line 36.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu (US 4,720,602).

The Chu reference does not disclose the feeds of claims 49 and 50.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Chu by utilizing the claimed feeds because these feeds contain components disclosed as being effectively converted in the disclosed process. Therefore, one would expect the claimed feeds to be effectively converted in the process of Chu.

Claims 30-32, 37, 38, 42, 44, 48-50, and 54 are rejected under 35 USC 103(a) as being unpatentable over Kaeding (US 4,078,009).

The Kaeding reference discloses a process for converting a hydrocarbon into aromatics and olefins. The process comprises contacting the hydrocarbon with a composition that contains a zeolite such as ZSM-5, a binder (e.g., silica), and a boron promoter. Representative boron compounds include trimethylborate and boron oxide. The amount of boron present can be as high as about 20 weight percent or more depending on the amount and type of binder present. The relative proportion of zeolite and binder may vary widely with the amount of zeolite ranging from about 1 to 99 percent by weight. The catalyst is prepared by combining the zeolite, binder,

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and boron compound. The catalyst can be activated with steam. See col. 2, line 7 through col. 12, line 3 and the examples.

The Kaeding reference does not disclose the ratios of the components and does not disclose all the feeds.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the claimed ratios of the components in the catalyst because one would utilize known catalytic components in amounts that result in an effective catalyst.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the claimed feeds in the Kaeding process because these feeds are similar to those disclosed and would therefore be expected to be effectively treated in the process of Kaeding. Regarding the presence of saturated compounds in the feed, it would have been obvious to one having ordinary skill in the art to have utilized feeds that contain saturated compounds because the presence of these compounds would not affect the conversion of other compounds.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 29-34, 38, 39, and 43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,235,955. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to a process for producing aromatics and olefins using a promoted zeolite catalyst. The patented claims include additional catalyst components. However, the claims of the present application are open to include other unspecified components in the catalyst.

Claims 29-35, 38-40, and 43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,063,975. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to a process for producing aromatics and olefins using a promoted zeolite catalyst. The patented claims include additional catalyst components. However, the claims of the present application are open to include other unspecified components in the catalyst.

Claims 29-36, 38-41, 43-47, and 49-53 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5,898,089. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to a process for producing aromatics and olefins using a promoted zeolite catalyst. The patented claims include additional catalyst components.

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However, the claims of the present application are open to include other unspecified components in the catalyst.

Claims 29-34, 38, 39, and 43 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 5,895,828. Although the conflicting claims are not identical, they are not patentably distinct from each other because each set of claims is drawn to a process for producing aromatics and olefins using a promoted zeolite catalyst. The patented claims include additional catalyst components. However, the claims of the present application are open to include other unspecified components in the catalyst.

### *Conclusion*

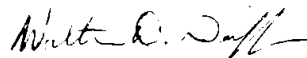
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses promoted zeolite catalysts and processes of using these catalysts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin  
Primary Examiner  
Art Unit 1764

WG

June 12, 2003